

## **REMARKS**

Claims 28-31 and 33-40 have been canceled and claims 45-47 have been added. Claims 1-27, 32 and 41-47 remain in the application. Reconsideration of the application is requested in view of the amendments and the remarks to follow.

Claims 1-44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,665,940 to Hodson et al., in view of U.S. Patent No. 5,872,019 to Lee et al. and U.S. Patent No. 4,808,983 to Benjamin et al. Claims 1-44 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,665,940 to Hodson et al., in view of U.S. Patent No. 5,872,019 to Lee et al. and U.S. Patent No. 4,808,983 to Benjamin et al., and further in view of Lee et al., U.S. Patent No. 6,326,221. Claims 28-31 and 33-40 have been canceled. Applicant traverses and requests reconsideration.

First, the proposed combinations fail to provide the invention as claimed. This is explained in more detail below.

The Examiner states (p. 2) that Hodson et al. discloses "tiling 4 or more emitter base plates, independently addressable, to provide a large area display with a fast display refresh rate." The Examiner further states that Benjamin et al. provides addressing of a monolithic display from opposite sides to increase the refresh rate. The Examiner is mistaken.

Benjamin et al. teaches (see Abstract) "A flat panel VDU or TV screen has pixel elements controlled by an array of small single crystal

semiconductor bars or chips." An array of small semiconductor bars is not a part of a monolithic display. Labeling the device taught by Benjamin et al. a monolithic display gives the term "monolithic" a meaning repugnant to the ordinary meaning of the term. Such is prohibited, as is explained in MPEP §608.01(o), entitled "Basis for Claim Terminology in Description".

This MPEP section states that "The meaning of every term used in any of the claims should be apparent from the descriptive portion of the specification with clear disclosure as to its import; and in mechanical cases, it should be identified in the descriptive portion of the specification by reference to the drawing, designating the part or parts therein to which the term applies. A term used in the claims may be given a special meaning in the description. No term may be given a meaning repugnant to the usual meaning of the term."

In fact, Benjamin identifies a monolithic display approach (col. 1, lines 22-39). Benjamin then explicitly teaches (col. 1, lines 59-61) that "The invention disclosed herein provides a flat-panel display of alternative construction to those outlined above."

Further, this combination fails to provide "forming a plurality of discrete, segmented regions of field emitter tips by removing at least portions of the substrate; individual discrete, segmented regions being electrically isolated into separately-addressable regions of field emitter tips", as recited in Applicant's claim 1.

This combination also fails to provide "forming a plurality field emitters from material of the substrate, the emitters being arranged into more than one demarcated, independently-addressable region of emitters", as recited in Applicant's independent claim 10.

This combination additionally fails to provide "providing a monolithic addressable matrix of rows and columns of field emitters" together with "partitioning the matrix into a plurality of discretely-addressable sub-matrices of field emitters", as recited in Applicant's independent claim 18.

This combination further fails to provide "providing row and column address lines operably coupled with the matrix and collectively configured to address the field emitters" or to provide the row and column address lines wherein "at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix", as recited in Applicant's independent claim 18.

Further, the proposed combination fails to provide "forming a plurality of discrete, segmented regions of field emitter tips", fails to provide the formation "by removing at least portions of the substrate" and fails to provide "individual discrete, segmented regions being electrically isolated into separately-addressable regions of field emitter tips", as recited in Applicant's independent claim 24.

Moreover, the proposed combination fails to provide "partitioning the matrix into a plurality of discretely-addressable sub-matrices of field emitters", as recited in Applicant's independent claim 32, and also fails to provide "providing row and column address lines operably coupled with the matrix and collectively configured to address the field emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix", as recited in Applicant's independent claim 32.

As well, the proposed combination fails to provide "a monolithic addressable matrix of rows and columns of field emitters, the matrix having a perimetral edge defining length and width dimensions of the matrix; the matrix being partitioned into a plurality of discretely-addressable sub-matrices of field emitters" and also fails to provide "row and column address lines operably coupled with the matrix and collectively configured to address the field emitters, at least one of the row or column address lines having a length within the matrix which is sufficient to address less than all of the field emitters which lie in the direction along which the at least one row or column address line extends within the matrix", as recited in claim 41.

More specifically, Benjamin et al. teach formation of liquid crystal displays (see, e.g., Examples 1-3). Benjamin et al. teach tiling IC chips 9 on the bottom substrate 3 to provide the addressing circuitry. Benjamin et al. are silent with respect to field emission devices. Benjamin et al. do, however,

teach that tiling of the IC chips 9 is a technologically significant challenge, and describes tooling and techniques for accomplishing this (col. 11, line 60 through col. 12, line 45).

Hodson et al. teach a large field emission device comprising a single anode and multiple cathodes. Hodson et al. teach (Title; Abstract; Field of the Invention; col. 3, lines 21-29; Summary; col. 4, lines 6-9; col. 6, lines 27-43) that tiling allows larger FEDs to be constructed than was previously possible, because of technological limits on the area of the emitter arrays that could be produced.

Accordingly, neither of these references teach a monolithic display. Lee et al. '019 and Lee et al. '221 are both utterly silent with respect to addressing of displays. In fact, Lee et al. '019 and '221 are void of the words "address" or "monolithic". For at least these reasons, the rejections are in error and should be withdrawn, and Applicant's claims should be allowed.

Second, Applicant notes that the Examiner states that "[i]t would have been obvious for one of ordinary skill in the art to address pixels of a monolithic display from opposite sides as in Hodson et al in [sic], with the difference in that the display is monolithic lieu [sic] of the tiled display of Hodson et al." However, the tiled display of Hodson et al. is their *raison d'etre*. Hodson et al.'s main intention is to provide a larger display than could be achieved monolithically by tiling baseplates together. It is inappropriate to modify references in a fashion that is contrary to their main intent.

Hodson et al. teach (Title; Abstract; Field of the Invention; col. 3, lines 21-29; Summary; col. 4, lines 6-9; col. 6, lines 27-43) that tiling allows larger FEDs to be constructed than was previously possible, because of technological limits on the area of the emitter arrays that could be produced. It is a main intent of Hodson et al. to provide larger FEDs via tiling than could be produced using monolithic cathodes. This main intent is destroyed in attempting to modify the teachings of Hodson et al. to try to arrive at the subject matter of Applicant's claims 1, 10 and 24 (reciting formation of emitter tips by removal of material from a substrate), 8 (reciting a monolithic base plate), 18, 32 and 41 (reciting a monolithic addressable matrix of field emitters).

Applicant notes the requirements of MPEP §2143.01, entitled "Suggestion or Motivation to Modify the References", stating that "THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE". This MPEP section further states that "If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)."

Modifying the teachings of Hodson et al. to try to arrive at the invention as recited in Applicant's claims, or as set out in the Office Action, clearly defeats this main intent and intended purpose taught by Hodson et al.

Accordingly, the rejections are in error and should be withdrawn, and Applicant's claims should be allowed.

Third, simply stating a conclusion that "it would have been obvious" to combine teachings from references or to modify or augment teachings from a reference does not meet the standards for a rejection under 35 U.S.C. §103(a) as set forth in The Manual of Patent Examination Procedure at §706.02(j) entitled "Contents of a 35 U.S.C. 103 Rejection." This MPEP section states that three basic criteria must be met in order to establish a prima facie case of obviousness.

The first of these is that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. The Office Action fails to show that the subject matter of claims 1-27, 32 and 41-44 is suggested or motivated by the teachings of the reference.

The second requirement of MPEP §706.02(j) is that there must be a reasonable expectation of success. The third requirement is that the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

Since all of the cited references are silent with respect to aspects of the invention as enumerated above, combining their teachings cannot possibly provide the invention as recited in any of Applicant's claims. As a result, there cannot possibly be a reasonable expectation of success from combining the teachings of the references.

The rejection of claims 1-27, 32 and 41-44 fails all three components of the test for an obviousness rejection as set forth in the MPEP. For at least these reasons, the rejection of claims 1-27, 32 and 41-44 should be withdrawn, and claims 1-27, 32 and 41-44 should be allowed.

Fourth, Applicant notes the requirements of MPEP §2145(X), entitled "ARGUING IMPROPER RATIONALES FOR COMBINING REFERENCES", section D(2), which states, inter alia, that "It is improper to combine references where the references teach away from their combinations."

Applicant notes the requirements of MPEP §2141.02, entitled "Differences Between Prior Art and Claimed Invention", stating that "PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS". This MPEP section further states that "A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)".

Hodson et al. teach that monolithic displays cannot provide the sizes that tiled displays can. Hodson et al. teach away from the invention as recited in Applicant's claims.

Benjamin et al. teach (col. 1, lines 29-34) that there are drawbacks to monolithic displays, and that the teachings of Benjamin et al. overcome (col. 2, lines 11-25) those drawbacks and provide significant advantages relative to



monolithic displays. Benjamin et al. teach away from the invention as recited in Applicant's claims.

Hodson et al. teach (col. 1, lines 43-50) that "Currently, liquid crystal displays are used almost universally for laptop and notebook computers. In comparison to a CRT, these displays provide poor contrast, permit only a limited range of viewing angles, and, in color versions, consume power at rates which are incompatible with extended battery operation. In addition, color liquid crystal screens tend to be far more costly than CRT's of equal screen size."

Hodson et al. teach that "As a result of the drawbacks of liquid crystal display technology, thin film field emission display technology has been receiving increasing attention from industry." Hodson et al. plainly and clearly teach away from liquid crystal display technology. Accordingly, there is no motivation, as a matter of law, to attempt to combine the teachings of Hodson et al. with those of Benjamin et al. to attempt to provide the invention as recited in Applicant's claims. For at least these reasons, the rejection of claims 1-27, 32 and 41-44 is defective and should be withdrawn, and claims 1-27, 32 and 41-44 should be allowed.

Fifth, the Examiner states (p. 3) cites the Lee et al. '019 reference for the proposition that Lee et al. '019 teaches aspects of the invention as recited in the claims. The Examiner is mistaken on multiple grounds.

For example, claim 1 recites "forming a plurality of discrete, segmented regions of field emitter tips by removing at least portions of the substrate,

individual discrete, segmented regions being electrically isolated into separately-addressable regions of filed emitter tips". Lee et al. '019 teaches forming isolated areas by boron doping (col. 5, lines 16-20). This is not equivalent to what is recited in claim 1. Lee et al. '221 is silent with respect to addressing. In fact, the word "address" does not appear anywhere in Lee et al. '221. The proposed combination does not provide the invention as recited in claim 1. For at least these reasons, the rejection of claim 1 is defective and should be withdrawn, and claim 1 should be allowed.

For further example, Lee et al. '019 is silent with respect to addressing of field emitter displays. In fact, Lee et al. '019 and Lee et al. '221 are void of the word "address". As such, it is inconceivable that Lee et al. '019 or Lee et al. '221 could teach, disclose, suggest or motivate "the emitters being arranged into more than one demarcated, independently-addressable region of emitters" or "providing address circuitry operably coupled with the field emitters and configured to independently address individual regions of the emitters", as recited in claim 10.

Moreover, none of the cited references teach, disclose, suggest or motivate row or column lines addressing less than all of a row or column in a monolithic display, as is described in claim 18. Lee et al. '119 do not teach separation of portions of a display by removing portions of a substrate, as is recited in claim 24 and as is erroneously alleged (p. 3) in the Office Action. Lee et al. '221 is silent with respect to addressing and thus cannot possibly teach, suggest, disclose or motivate addressing part of a row or column.

Accordingly, the rejections of Applicant's claims are in error and should be withdrawn, and Applicant's claims should be allowed.

Sixth, and additionally, the Examiner states (p. 5) that the Lee references are cited to "support the examiner's statement that certain features were well know [sic] in the art at the time of applicant's invention ...." However, such is not the test for patentability or unpatentability.

It is well established that old elements may be combined to provide results not suggested by references and thereby to be patentable. "The patentability of such combinations is of ancient authority." *Prouty v. Draper*, 41 U.S. (16 Pet.) 336, 341 (1842); *Eames v. Godfrey*, 68 U.S. (1 Wall.) 78, 79-80 (1863); *Gill v. Wells*, 89 U.S. (22 Wall.) 1, 25 (1874); see also H.T. Markey, *Why not the Statute?*, 65 J. Pat. Off. Soc'y., 331, 333-34 (1983) ("virtually all inventions are 'combinations', and ... every invention is formed of 'old elements' .... Only God works from nothing. Man must work with old elements"). These principles of patent law are repeated in many other cases, including *In re Wright*, 6 USPQ2d 1959 (CAFC) and *Fromson v. Advance Offset Plate, Inc.*, 225 USPQ2d 26 (CAFC).

The latter case further states that "There is no basis in the law, however, for treating combinations of old elements differently in determining patentability. See *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d at 1540, 218 USPQ at 880." As noted in *Diamond v. Chakrabarty*, 206 USPQ 193, 196, the Supreme Court stated that "We have also cautioned that courts "should not read into the patent laws limitations and conditions with the legislature has

not expressed." *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 199, 17 USPQ 154, 162 (1933)." Accordingly, the test for unpatentability is not whether the elements are known. Such is irrelevant to a finding of unpatentability. As a result, the rejections are defective and should be withdrawn, and Applicant's claims should be allowed.

Seventh, since there is no teaching in the references to guide the artisan in "picking and choosing" some elements from each reference or ignoring others, the Examiner must be using an "obvious to try" approach employing Applicant's own claims as a guide in impermissible hindsight. Such is improper as is noted below.

Applicant notes the requirements of MPEP 2145(X)(B), entitled "Obvious To Try Rationale". This MPEP section states that "The admonition that 'obvious to try' is not the standard under §103 has been directed mainly at two kinds of error. In some cases, what would have been 'obvious to try' would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful. In others, what was 'obvious to try' was to explore a new technology or general approach that seemed to be a promising field of experimentation, where the prior art gave only general guidance as to the particular form of the claimed invention or how to achieve it." *In re O'Farrell*, 853 F.2d 894, 903, 7 USPQ2d 1673, 1681 (Fed. Cir. 1988).

The Examiner has identified no teachings in the references that would guide the artisan in selecting elements to combine to arrive at the invention as recited in Applicant's claims. As a result, the rejections are defective and should be withdrawn, and Applicant's claims should be allowed.

Eighth, as there is no basis for the Examiner's contentions within the cited references, the only possible motivation for these contentions is hindsight reconstruction wherein the Examiner is utilizing Applicant's own disclosure to construct a reason for combining the cited references. The Examiner is reminded that hindsight reconstruction is not an appropriate basis for a §103 rejection. (*See, e.g., Interconnect Planning Corp. v. Feil*, 227 USPQ 543, 551 (Fed. Cir. 1985); *In re Mills*, 16 USPQ2d 1430 (Fed. Cir. 1990) (explaining that hindsight reconstruction is an improper basis for rejection of a claim).) For at least these reasons, the rejections are improper and should be withdrawn, and Applicant's claims should be allowed.

Ninth, no evidence has been provided as to why it would be obvious to combine or modify the teachings of these references. Evidence of a suggestion to combine may flow from the prior art references themselves, from the knowledge of one skilled in the art, or from the nature of the problem to be solved. However, this range of sources does not diminish the requirement for actual evidence. Further, the showing must be clear and particular. *See In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999).

New claims 45-47 are supported at least by text appearing at p. 3, line 1 through p. 14, line 2 of the application as originally filed. No new matter is

added by new claims 45-47. New claims 45-47 distinguish over the art of record and are allowable.

In view of the foregoing, allowance of claims 1-27, 32 and 41-47 is requested. The Examiner is requested to phone the undersigned in the event that the next Office Action is one other than a Notice of Allowance. The undersigned is available for telephone consultation at any time during normal business hours (Pacific Time Zone).

Respectfully submitted,

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By: Frederick M. Fliegel, Ph.D.

Reg. No. 36,138



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Inventor ..... Ammar Derraa  
Assignee ..... Micron Technology, Inc.  
Group Art Unit ..... 2879  
Examiner ..... K. Ramsey  
Attorney's Docket No. .... MI30-034  
Title: Methods of Forming a Base Plate for a Field Emission Display (FED)  
Device, Methods of Forming a Field Emission Display (FED) Device, Base  
Plates for Field Emission Display (FED) Devices, and Field Emission Display  
(FED) Devices

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**ACCOMPANYING RESPONSE TO MARCH 25, 2002 OFFICE ACTION**

Deletions are bracketed, additions are underlined.

In the Claims

Claims 28-31 and 33-40 have been canceled and claims 45-47 have  
been added.

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